Wetland Development with Dredged Material

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Speaker's Background

- Professor at Rutgers (1975-1987)
- Member of NJ Wetland Mitigation Council (1989)
- President of Shisler Environmental Consultants (1990-2000)
- Senior Ecologist for BBL (2000-present)

History of Wetland Development with Dredged Material

- Intercoastal Waterway Dredging
  - Incidental development of levees, bay islands, and wetlands

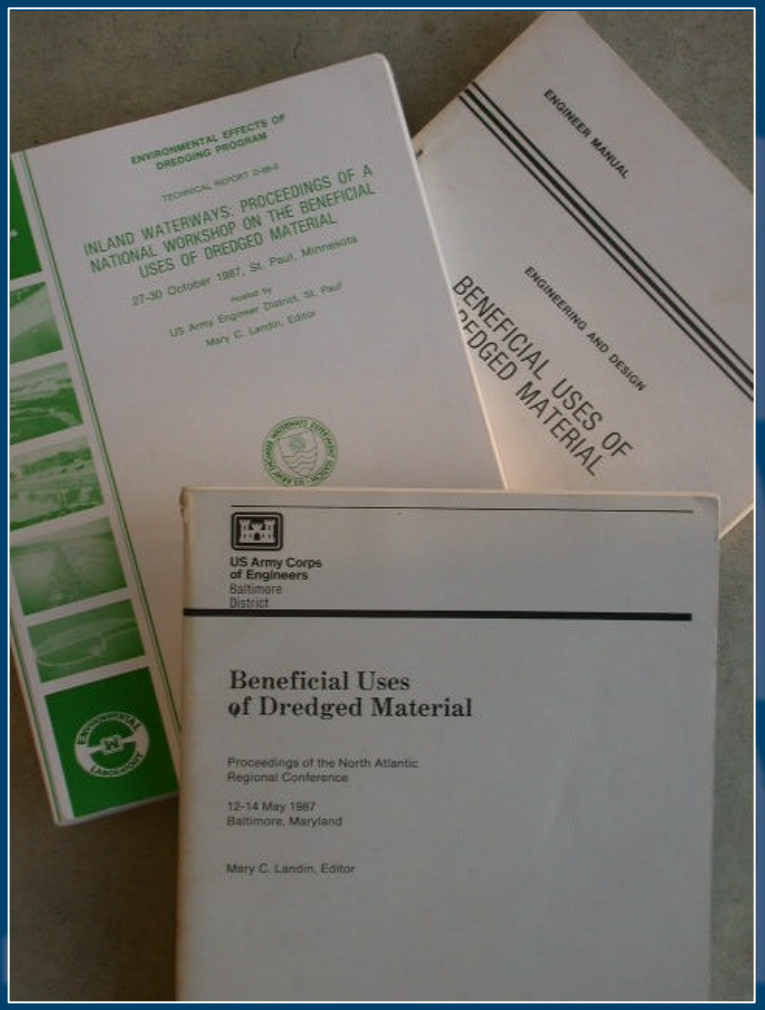
South Amboy, circa 1940

Intercoastal Waterway

History of Wetland Development with Dredged Material

- USACE
  - Developing wetlands research since 80s
  - Many long-term, successful projects

Dredge Material Management Program
Final Programmatic Environmental Assessment



History of Wetland Development with Dredged Material

- Several large-scale projects in region
  - Hart-Miller Island, MD
  - Kelly Island, DE
  - Egg Island Point, NJ

Hart-Miller Island

Egg Island Point

“Wetland Development” - terminology

- Creation – development of a wetland where an upland previously existed

- Restoration – returning a former wetland (drained/filled/subsided) to wetland conditions

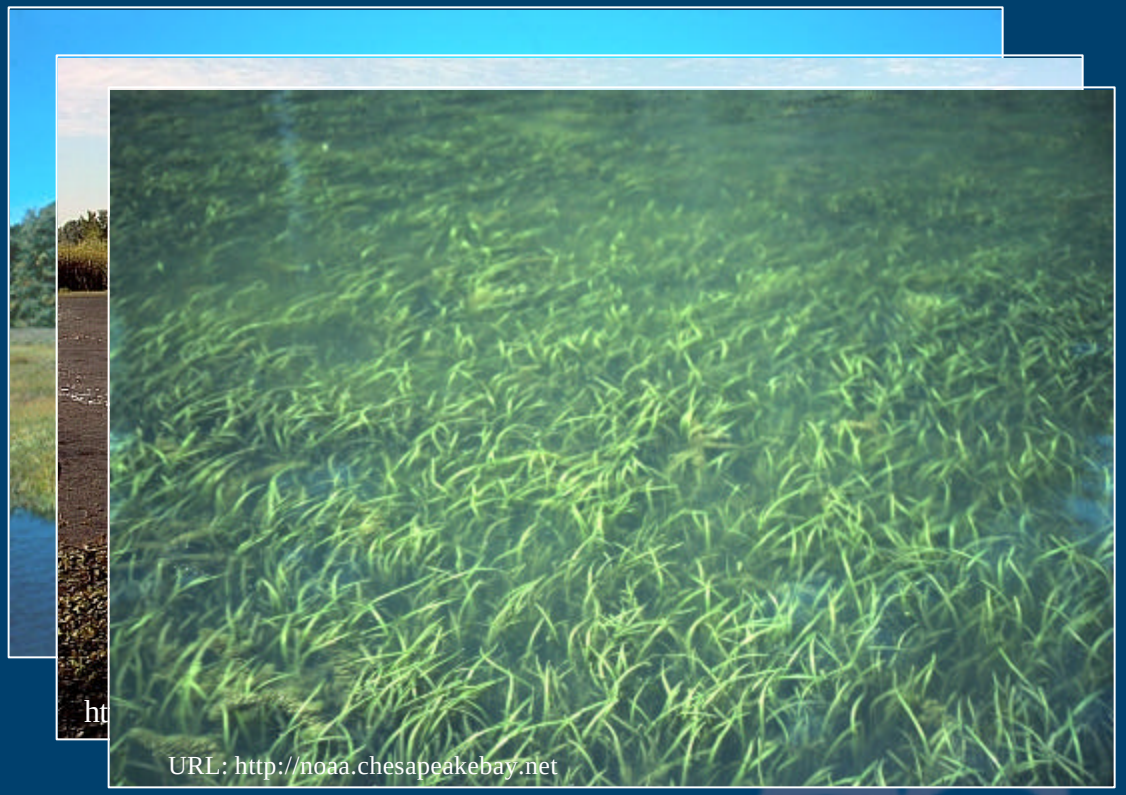
“Wetland Development” - terminology

- Enhancement – improving conditions of an existing wetland

- Mitigation – (regulatory context) creating, restoring, or enhancing wetlands to compensate for impacts to other wetlands

Beneficial Reuse Options for Wetland Development

- Tidal Wetlands
  - High salt marsh
  - Low salt marsh
  - Mudflats
  - Shallow water areas & SAV



Beneficial Reuse Options for Wetland Development

- Freshwater, Riverine
  - Floodplain development where sediment has been intercepted by dams

Mount Holly, NJ

Somerville, NJ

Beneficial Reuse Options for Wetland Development

- Multi-purpose Uses with Wetlands
  - Protection from beach erosion
  - Restoration of bay islands
  - Replacement of subsiding coastlands

Poplar Island, MD

Benefits of Reusing Dredged Material for Wetland Development

- Disposal site for material, cost savings
- Erosion protection
- Storm surge control
- Water quality improvement
- Wildlife habitat…

Benefits of Reusing Dredged Material for Wetland Development

- Wildlife habitat
  - Fish
  - Crabs, shrimp, and other crustaceans
  - Shellfish
  - Wading birds
  - Turtles and other reptiles/amphibians

Planning Wetland Development Projects with Dredged Material

- Project Specific Considerations
- Typical Problems
- Keys to Success

Planning Wetland Development Projects with Dredged Material

Project Specific Considerations

- Approvals and permits
  - State, county, municipal
    - Dredging
    - Erosion control
    - Wetland impacts

Planning Wetland Development Projects with Dredged Material

Project Specific Considerations

- Funding / costs
  - Material removal, transport, placement, and grading
  - Permitting, planning, and design
  - Planting
  - Maintenance
  - Cooperative arrangement ?

Planning Wetland Development Projects with Dredged Material

Project Specific Considerations

- Type of material
  - Sandy, best suited for beach renourishment
  - Fine, best suited for wetland development
  - Contaminated or Clean

Planning Wetland Development Projects with Dredged Material

Project Specific Considerations

- Volume of material
  - Enough to make wetland project worthwhile?
    - Cost effective
    - Significant ecological / environmental benefit

Planning Wetland Development Projects with Dredged Material

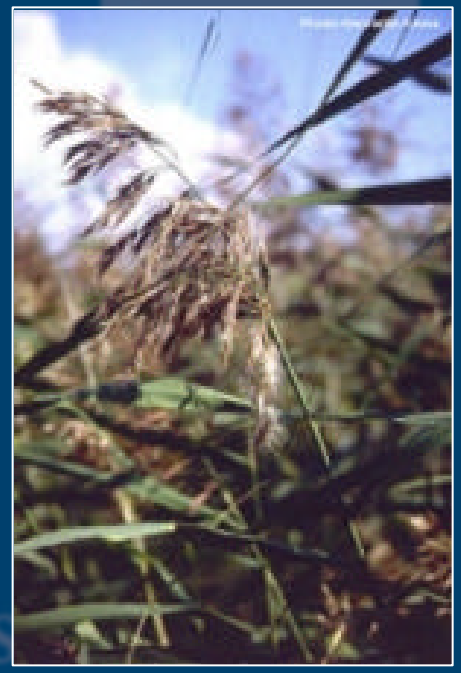
Project Specific Considerations

- Ecological Trade-off
  - Habitat destroyed vs. Habitat created
  - i.e. shallow water habitat vs. low salt marsh
  - Is there a net ecological benefit ?

Planning Wetland Development Projects with Dredged Material

Typical Problems

- Poor location choice
  - Erosion (wind, wave) hard to control
- Subsidence / Settling
  - Wetland hydrology impacted
  - Potential negative effect on plants
- Invasive species
  - Dredged material provides a good environment for their establishment



Planning Wetland Development Projects with Dredged Material

Keys to Success

- Monitoring & Adaptive Management Plans
  - Account for settling, erosion, invasive species

Planning Wetland Development Projects with Dredged Material

Keys to Success

- Consistency through planning, implementation, and M&M stages

- Cooperative Arrangements
  - Material volume
  - Funding
  - Shared expertise / experience

Questions ?

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